WHAT IS CLAIMED IS:

1.   An ink-jet printing apparatus for printing a visible image on a print medium by discharging ink from a plurality of ink ejection print elements, comprising:

5   means for storing a first table indicating a correspondence between a plurality of inks and gray scale values of print pixels;

means for storing a second table indicating combinations of density distribution patterns of print

10   pixels and the ink ejection print elements in correspondence with the gray scale values;

designation means for designating a region consisting of a predetermined number of neighboring pixels from pixels that forms an input image;

15   selection means for selecting the pixel density distribution pattern for the designated region; and

control means for controlling ink ejection/non-ejection of ink from the plurality of ink ejection print elements by looking up the first and

20   second tables in accordance with the pixel density distribution pattern and a gray scale value thereof.

2.   The apparatus according to claim 1, wherein said control means looks up the first and second tables on the basis of a value near a value obtained by dividing

25   a sum total of gray scale values of pixels which forms the region by the predetermined number of pixels.

3.   The apparatus according to claim 1, wherein said selection means selects the pixel density distribution pattern on the basis of a difference between a value of a pixel of interest of the pixels that form the region,

5   and an average value of gray scale values of all pixels which form the region.

4.   The apparatus according to claim 1, wherein a plurality of combinations of density distribution patterns of the print pixel and ink ejection print

10   elements are prepared for a single gray scale value, and said control means sequentially or randomly selects these combinations.

5.   The apparatus according to claim 1, wherein said control means adopts an ink-jet printing method of

15   discharging double ink droplets onto at least a single unit pixel, and prints the visible image by discharging one or plurality of ink droplets onto the unit pixel.

6.   The apparatus according to claim 1, wherein said control means adopts an ink-jet printing method of

20   discharging ink droplets having at least two different dot sizes, and prints the visible image by discharging one or plurality of ink droplets onto a unit pixel.

7.   The apparatus according to claim 1, wherein said control means adopts an ink-jet printing method of

25   discharging at least two multi-density ink droplets for the same hue, and prints the visible image by

discharging one or plurality of ink droplets onto a unit pixel.

8.   The apparatus according to claim 1, wherein the plurality of ink ejection print elements are integrated and line up, and express a halftone image by controlling a plurality of ink dots to land on substantially a single print pixel on a print medium when they are scanned a plurality of number of times in a direction different from the line-up direction while being moved relative to a print medium by a predetermined width in a direction different from the scan direction.

9.   An ink-jet printing method for printing a visible image on a print medium by discharging ink from a plurality of ink ejection print elements, comprising:

the designation step of designating a region consisting of a predetermined number of neighboring pixels from pixels that forms an input image;

the selection step of selecting a pixel density distribution pattern for the designated region; and

the control step of controlling ink ejection/non-ejection of ink from the plurality of ink ejection print elements by looking up a first table indicating a correspondence between a plurality of inks and gray scale values of print pixels and a second table indicating combinations of density distribution patterns of print pixels and the ink ejection print

elements in correspondence with the gray scale values
in accordance with the pixel density distribution
pattern and a gray scale value thereof.

10.   The method according to claim 9, wherein the
5   control step includes the step of looking up the first
and second tables on the basis of a value near a value
obtained by dividing a sum total of gray scale values
of pixels which forms the region by the predetermined
number of pixels.

10   11.   The method according to claim 9, wherein the
selection step includes the step of selecting the pixel
density distribution pattern on the basis of a
difference between a value of a pixel of interest of
the pixels that form the region, and an average value
15   of gray scale values of all pixels which form the
region.

12.   The method according to claim 9, wherein a
plurality of combinations of density distribution
patterns of the print pixel and ink ejection print
20   elements are prepared for a single gray scale value,
and the control step includes the step of sequentially
or randomly selecting these combinations.

13.   A computer readable memory that stores a program
code of an ink-jet print process for printing a visible
25   image on a print medium by discharging ink from a
plurality of ink ejection print elements, comprising:

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a program code of the designation step of designating a region consisting of a predetermined number of neighboring pixels from pixels that forms an input image;

5   a program code of the selection step of selecting a pixel density distribution pattern for the designated region; and

a program code of the control step of controlling ink ejection/non-ejection of ink from the plurality of

10   ink ejection print elements by looking up a first table indicating a correspondence between a plurality of inks and gray scale values of print pixels and a second table indicating combinations of density distribution patterns of print pixels and the ink ejection print

15   elements in correspondence with the gray scale values in accordance with the pixel density distribution pattern and a gray scale value thereof.